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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,602	12/28/2001	Stuart A. Golden	10559-510001/ P12414	2696

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EXAMINER	
GUTIERREZ, ANTHONY	
ART UNIT	**PAPER NUMBER**
2857	

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,602	GOLDEN ET AL.	
	Examiner	Art Unit	
	Anthony Gutierrez	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *08 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *44-47* is/are allowed.

6)☒ Claim(s) *1-3,5,12-14,16,23-25,27,34-36,38 and 40-43* is/are rejected.

7)☒ Claim(s) *4,6-11,15,17-22,26,28-33,37 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4, 15, 26, and 37 are objected to because of the following informalities: They repeat the same subject matter of allowed claims 44-47 respectively.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3,5,12-14,16,23-25,27,34-36, 38, and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US Patent Application Publication US 2002/0197975 A1) in view of Kim (US Patent Application Publication US 2003/0109241 A1).

As to claims 1,2,12,13,23,24,34,35, and 40-43, Chen discloses a method comprising: observing a continuous finite duration signal y_n that comprises a representation of a mixture of a desired signal and an undesired signal, the undesired signal comprising an offset component (paragraphs 0002, 0005, and 0009); modeling the offset component of the undesired signal as comprising a step function a defined by unknown step function parameters (paragraphs 0028-0031); estimating the unknown

step function parameters (paragraphs 0036-0038); and adjusting y_n based on the estimated step function parameters (paragraph 0039).

Chen does not specifically disclose that the offset component is based on interference of an external interference source. Chen, however, teaches a method for calibrating a DC offset cancellation level for direct conversion receivers (Title) that are susceptible to noise from sources that are either far less significant or entirely absent in heterodyne receivers such as DC offset which is taught is an important source of noise (paragraphs 0004 and 0005).

Kim, however discloses a direct conversion receiver for removing DC offset (Title) and further teaches that a factor that causes a DC offset component is external interference (paragraph 0040).

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to apply the method of Chen to external sources of interference that are responsible for DC offset components, in order to enhance the reduction of receiver error rate, which is ultimately the goal of the method of invention of Chen (paragraphs 0005-0009).

As to claims 3,14,25, and 36, Chen further discloses in which y_n comprises a discrete signal (paragraph 0052, lines 10-12).

As to claims 5,16,27, and 38, Chen further discloses (see Fig. 5A) in which the step function parameters include a first parameter indicative of a first amplitude of the step function (x1), a second parameter indicative of a second amplitude of the step function (x2), and a third parameter indicative of a point at which the step function transitions from the first amplitude to the second amplitude (T), and in which the desired

signal is a function of at least one unknown signal parameter (paragraphs 0038, equations 9-11).

As to claims 40-43, Chen further discloses that the desired signal comprises data of interest (paragraphs 0051 and 0052).

Allowable Subject Matter

4. Claims 44- 47 are allowed.

5. Claims 6-11,17-22,28-33, and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claims 44-47 are deemed allowable over the prior art as the prior art fails to teach or fairly suggest modeling a finite duration signal as including a discrete representation of a desired signal and a discrete representation of an offset component related to a square of an undesired signal in which the offset component is modeled as a comprising a step function defined by unknown step function parameters.

Claims 6-11,17-22, and 28-33, are deemed as containing allowable subject matter over the prior art as the prior art fails to teach or fairly suggest modeling an offset component of an undesired signal by estimating step function parameters c1, c2, and

α for a finite duration signal based on a non-linear optimization or maximum likelihood method.

Claim 39 is deemed allowable over the prior art as the prior art fails to teach or fairly suggest modeling an offset component of an undesired signal by estimating step function parameters c1, c2, and α for a finite duration signal using the specific formulas present in the claim.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3, 5,12-14,16,23-25,27,34-36, and 38, have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to new claims 40-43 have been fully considered but they are not persuasive.

The Applicant has suggested that Chen does not teach a desired signal that comprises data of interest by citing the relevant discussion in paragraph 0052. The Examiner disagrees.

In paragraph 0051, Chen teaches, "Calibration according to the present invention may be performed while a signal **is present** in the receiver" and in paragraph 0052, Chen further teaches that it is preferable to perform the calibration algorithm "only when signals carrying data of interest **are not being received.**"

Chen is not implying that the calibration algorithm should be applied to signals that do not carry data of interest, but rather teaches that the algorithm should not be applied to signals **as they are being received.** Chen teaches that performing the

algorithm **while the signal is being received** "may cause data corruption and/or increased error rate" and that one solution to properly time the performance of the algorithm is to perform the calibration **between bursts** of data being transmitted to the receiver.

The following discussion essentially supports that the desired signal of Chen actually involves data of interest and therefore, the method of invention carefully ensures that the timing of the application of the calibration algorithm is applied in a way that attempts to prevent data corruption and increased error rate.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patent Application Publication US 2002/0061081 A1 to Richards et al. discloses a method for reducing potential interference in an impulse radio by sampling a received signal at a plurality of time offsets from each of the data sample times.

United States Patent Application Publication US 2001/0011019 A1 to Jokimies teaches a method for calculating C2 parameters involved in cell selection and cell reselection calculated by a mobile phone using a step function and an offset parameter.

US Patent 6,678,339 B1 to Lashkarian teaches a maximal likelihood method that applies over an entire span of observed signals.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Gutierrez
4/16/04

MARC S. HOFF
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